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ABSTRACT

Curriculum leaders, program specialists, and teachers can intentionally arouse the activation of one hemisphere of the brain over the other through the use of right brain strategies in language learning. While most functions of the left hemisphere are concerned with convergent production (getting the right answer), functions of the right hemisphere are concerned with divergent production that involves imagery--the vehicle through which creativity occurs. Right-brain strategies in written language encourage the use of thinking inherent in analogy, metaphor, synthesis, and imagery. An example of such a strategy is the use of a configural structure involving free association, imagery, and metaphorical thinking known as a "web." Because humans think in images, several activities that encourage free association and imagining can form the basis for language arts activities. For example, guided fantasy can help students to sustain an imaginary experience. The technique of imagining can be used to enhance comprehension. Students can be invited to close their eyes and "put themselves" into the story. Because pictures represent actual life situations, they can be used to expand language and develop compound and complex sentence structures holistically. These activities use children's natural abilities to imagine by asking them to describe the pictures and ideas that evolve in their minds. Similar strategies can be designed which tap the innate resources of metaphorical and analogic thinking. (HOD)

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Title: How Curriculum Leaders Can Involve the Right Brain in Active Reading and Writing Development

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How Curriculum Leaders Can Involve the Right Brain in Active Reading and Writing Improvement

The purpose of this presentation was to show curriculum leaders, program specialists, and teachers how to encourage the use of right brain strategies in language learning particularly those related to reading and writing development. Hemispheric specialization is a topic quite in vogue for educators. While it is acknowledged that the whole brain, due to its anatomical structuring of massive interconnections between the hemispheres, participates in most language learning tasks (Hellige, 1980; Levy, 1983), educators can intentionally arouse the activation of one hemisphere over the other through the use of particular strategies. Levy calls this a "gateway" approach in which arousal of one hemisphere can be the initial strategy for whole-brain learning while Hellige focuses on "Aptitude x Treatment" interactions. Both approaches suggest that an individual has a bias or a degree of specialization for the activation of one hemisphere over the other and that there are methods or strategies to complement those preferences or aptitudes.

Reading and writing, however, especially in the introductory stages of development, are strongly-related left hemisphere tasks. This is true because activation of the auditory-motor speech system occurs as youngsters sequentially attempt to sound out and spell words. This activation can continue upward through the intermediate grades of the curriculum through activities which foster analysis of

the printed language system such as decoding, recognizing word parts, syllabication, accent, and sentence analysis. In this case, the learner may bring the right hemisphere into play if the words and sentences under analysis bring a feeling or image to mind, but the point is that the language arts curriculum was not intentionally structured to do that. By the same token, many teachers of primary children actively foster right hemisphere involvement through such activities as language experience stories and word labeling of room objects. In this case the youngster may not have to labor through the word to come to the mental picture of meaning, but the child uses imagery or what Levy (1983) calls apprehension to mentally visualize the word's meaning as the word is holistically approached.

The educator may rightfully question why it is necessary to worry about bringing the right hemisphere into play when language expression is primarily a left-hemisphere related task. We challenged this perspective for two major reasons. First of all, right-brained gateway strategies in written literacy learning encourage the use of thinking inherent in analogy, metaphor, synthesis, and imagery. This thinking process underlies the essence of creative thought. According to Gowan (1978), while most functions of the left hemisphere are concerned with convergent production (getting the right answer), functions of the right hemisphere are principally concerned with divergent production which involves imagery, the vehicle through which creativity occurs. Figure 1 shows the processing style of both hemispheres and how parallel, analogic, and imagistic modes contrast with respective

left-hemisphere processing modes (Sinatra, in press).

Insert Figure 1 Here

For curriculum leaders, it is no easy task to retrain teachers to deliver reading and writing content through parallel, analogic, and imagistic strategies. It requires a change of teacher training and orientation. It requires that the teacher relearn that the book does not bring the thinking of creativity to youngsters but that youngsters have to be shown how to make nonverbal, symbolic connections before they turn to tasks with the printed word. It also means that the thinking of metaphor, synthesis, and imagery is not reserved for high average or gifted youngsters. It is thinking inherent in all children. Such statements as, "How can I teach my remedial readers figurative language when they can't even get the facts?", would hopefully disappear.

Metcalf (1975) in his extensive testing procedure using the EEG found that the most pronounced right hemisphere activity was the mental imagery task. A number of researchers working in different contexts have confirmed that when imagery is intentionally activated for normal and disabled learners such skills as reading comprehension dramatically improve (Yarmey and Bowen, 1972; Levin, 1973; and Paivio, 1979).

The second reason why the curriculum leader needs to acknowledge the power of right hemisphere in language learning regards the notion of "the basics." Are the real basics the three "Rs", or is there a

basic before those early school experiences? Many erroneously assume the three "Rs" to be the basics because they lay the foundation for all subsequent book learning to follow (Moffett and Wagner, 1983). However, the real basic in human learning is nonverbal, sensorimotor experience. The impact of environmental and sensorimotor deprivation for youngsters is that it will cause them not to learn the nonverbal concrete referents called schemata which are the basis for language arts tasks.

Thus, through the elementary grades, it is especially important to allow young children to explore the environment and to provide kinesthetic, tactual experiences which will help force communication between the hemispheres. The implication of the EEG research with young children (Kraft et al., 1980) and that noted from myelin maturation (Galin, 1976; 1979) is that hemispheric integration can be facilitated when the right hemisphere is given a commanding role in stimulating the verbal. The less nonverbal experience a child has had, the less will be the mental schemata formed, and by extension, the less the verbal reenactment of those experiences. The more that nonverbal experience can be expressed, such as through drawing and painting, music, drama, dance, sculpture, picture taking, map and graph construction, guided imagery, etc., the more will be the schemata developed, and undoubtedly, the richer, the verbal accounting of those experiences (Sinatra, 1983; Sinatra and Stahl-Gemake, 1983).

That a host of right-brained strategies can be devised for

the language arts for learners of all ages has been thoroughly explored by Sinatra and Stahl-Gemake (1983). Some of these will now be enumerated in this presentation.

Examples of Strategies Using Metaphor, Imagery & Analogy

The first activity uses a configurational structure which involves free association, imagery and metaphorical thinking, and is known as a web. Webs or maps have been used to develop vocabulary (Johnson & Pearson, 1978; Sinatra & Stahl-Gemake, 1983), and to support writing (Sinatra, Gemake, & Morgan, in preparation; Sinatra & Stahl-Gemake, 1983).

We believe that webs integrate left and right brain specializations. The shape of the web and the holistic presentation of the material are elements which suit the spatial and visual learning style of the right hemisphere while the words within the web's nodes appeal to the verbal processing ability of the left hemisphere. In the following vocabulary web, the central node contains the high imagery noun, dog. Paivio, Yuille & Madigan (1968) have listed words with high imagery associations that can be used in descriptive webs to build, related vocabulary. Satellite nodes present the categories of words that will be learned. The web, as initially presented to lower grade students, looks like this -

Insert Figure Two Here

Students dictate the words related to each category and the teacher prints the words into the corresponding nodes. This is an example of a completed web.

Insert Figure Three Here

The words in the nodes represent metaphorical thinking. Each word represents an aspect and an association for the central concept, dog. This web could have been enlarged since the students thought of many more words than this web records.

We have developed sight vocabulary with problem readers through the use of webs. The students form associations between the high imagery word in the central node and the surrounding categorical words. After the web is constructed and read, the words are printed on index cards for flash presentation. If children cannot read any of the words, they return to the web and locate the words. Often, the configuration of the whole web facilitates recall of particular words.

This approach to building sight vocabulary can be used with any high imagery words. Again, because the word in the central node has visual appeal and evokes images, and is surrounded by related vocabulary, it tends to be easily remembered. The configuration of the web supports holistic recall.

Using Webs for Creative Writing

Because webs are a focus for free association, imagery and metaphorical thinking, they can be used for creative writing. The following sequence of experiences climaxed with students' writing original color poems.

First, the poem, "What Is Red?" (O'Neil, 1969) was read to a group of adolescent learning disabled students in a special education class. The ideas from this poem were discussed and a web

was developed to display the poem's associations.

Next, students created their own webs about the color red. They were presented with the following model and developed their nodes from personal free associations and ideas:

Insert Figure Four Here

Here is one poem, written from information in the web, composed by a learning disabled,adolescent male.

Red

Red is a color I like very much.
Red is a color that's hot to your touch.
Red has the taste of a burning spice.
It is a dress that looks very nice.

Red is the color of a cold in your nose.
It is the color of ripe, red tomatoes.
The color of a small, little cherry.
The color of a bright, bumpy berry.
Red is cheery, never gloomy.
Red is a color that's very pretty to me.

Paul

The web presented the associations in an accessible manner so that ideas could be contrasted and juxtaposed for a novel piece. The web makes ideas so concrete that special education students were able to retrieve information and compose original poems. By recording free associations and noting images the metaphors described in the poem were accessible for writing.

Using Imagery in Writing:

Because we think in images, several activities which encourage free association and imagining can form the basis for language arts

activities. The following set of directions for a guided fantasy can help students to sustain an imaginary experience. Directions are spoken in a slow, low voice with pauses to allow students time to form their images. Pauses are indicated by the slash (/) marks. If possible, lights should be dimmed and students should make themselves comfortable.

> Close your eyes,relax, and imagine that someone has brought you a gift. It is a very special present./ In front of you, on a table, is the wrapped gift./ See the present in its pretty ribbons and paper./
>
> Now, slowly unwrap the gift. First remove the bows./ Now, open the paper./ There is a box. See the box. Think of the size and shape of the box. What could be in it? /
>
> Now, slowly open the box. / What is in the box? See your present. What color is it?/ What shape is it?/ What is special about it?/ What will you do with it?/ How do you feel about it?/ Who gave you this present?/ How do you feel about this person? How do you feel now?

After this imaginary experience, students can concretize the experience by drawing a picture of their present. The questions asked in the fantasy become guidelines for writing about this gift. On a deeper level, the free associations brought to the gift often

reveal a desire or wish. The "gift" becomes a metaphor for feelings and needs. Because fantasy experiences are personal, the writing which emerges can reflect an individual's hopes and dreams.

Guided fantasies are used extensively as relaxation techniques. Because these representations are imagistic, "emotionally releasing", they stimulate right brain processing. These evocative and personal episodes are creative and unique, and provide rich sources of motivation for original writing.

Using Imagery and Analogic Thinking to Enhance Comprehension

The technique of imaging can be used to enhance comprehension. Students can be invited to close their eyes and "put themselves" into the story. Frequently, illustrations support written context. One simple way of actively using these pictures and stimulating analogic thinking is to invite children to "step into" the illustration to experience the story. Questions can be used to guide these fantasy excursions. Children can be asked to describe what they feel, smell, taste, see and hear. The five senses can help students to contact and interact with illustrated situations because they are representations of real life experiences. Concept-building occurs as students apply previously learned schema to understand and relate to story characters and events. The picture represents a viable means of connecting the old and new, the known and the unknown.

If the text has no supporting pictures, time should be made during a reading lesson to allow students to imagine story details

and action. We all "see" what we read. How often have we been dissatisfied with the dramatization of a book we've read because the actors do not suit our concept of the leading characters or the sets do not display our ideas of the settings. These internal visualizations are resources which can be tapped to enhance comprehension and extend meaning of the printed word in children once we are aware of their occurrences.

Analogic Thinking and Sentence Expansions

Because pictures represent actual life situations, they can be used to expand language and develop compound and complex sentence structures holistically. As an example, third graders were presented with the following picture and questions.

Insert Figure Five Here

Who is in the picture?
What are they doing?
Where are they?
When is this picture happening?
Why are they there?

Children were directed to combine their answers to these questions into ONE sentence. Here are examples of their expanded sentences.

The children are in the park on a summer's day because they want to go on the swings.

It is a warm day and the children go to the park because they want to ride on the swings.

The children are in the park on a nice day to go on the swings.

On a nice day it is fun to go to the park with your friends to go on the swings....

Using the picture as their reference point and the questions as their guide, they naturally expressed themselves in longer and more complex language units. The picture evokes a common experience because it is an anology - it represents and helps us recall the actual situation. Language, then, describes and communicates the experience to others (Refer to Figure One).

Language Arts for the Whole Brain: Some ideas for integrating right and left brain functioning in reading and writing tasks have been presented. These activities use children's natural abilities to imagine by asking them to describe the pictures and ideas that evolve in their minds. Similar strategies can be designed which tap the innate resources of metaphorical and analogic thinking. It is important that curriculum leaders understand the power of this thinking and that teachers need some reorientation to bring this power to influence greater comprehension and creativity in reading and writing tasks.

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Figure 1.

DISTINCTIVE FEATURES OF
VERBAL AND NONVERBAL LITERACIES

	Left Hemisphere Processing Style	Right Hemisphere Processing Style
	Verbal	Nonverbal
1.	Sequential Mode of Processing takes increments of time	Parallel Mode of Processing simultaniety of processing in holistic way
2.	Digital Mode of Codification needs various combinations of letters or numbers to represent meaning	Analogic Mode of Codification represents the actual life situation itself like pictures, scaled objects, gestures
3.	Auditory-Motor Mode of Retrieval requires serial representation and sequential processing of auditory perception system	Imagistic Mode of Retrieval image is recalled in parallel, all-at-a time and image is faithful representation of original

Dog Web Figure Two: Initial Presentation of Vocabulary Web

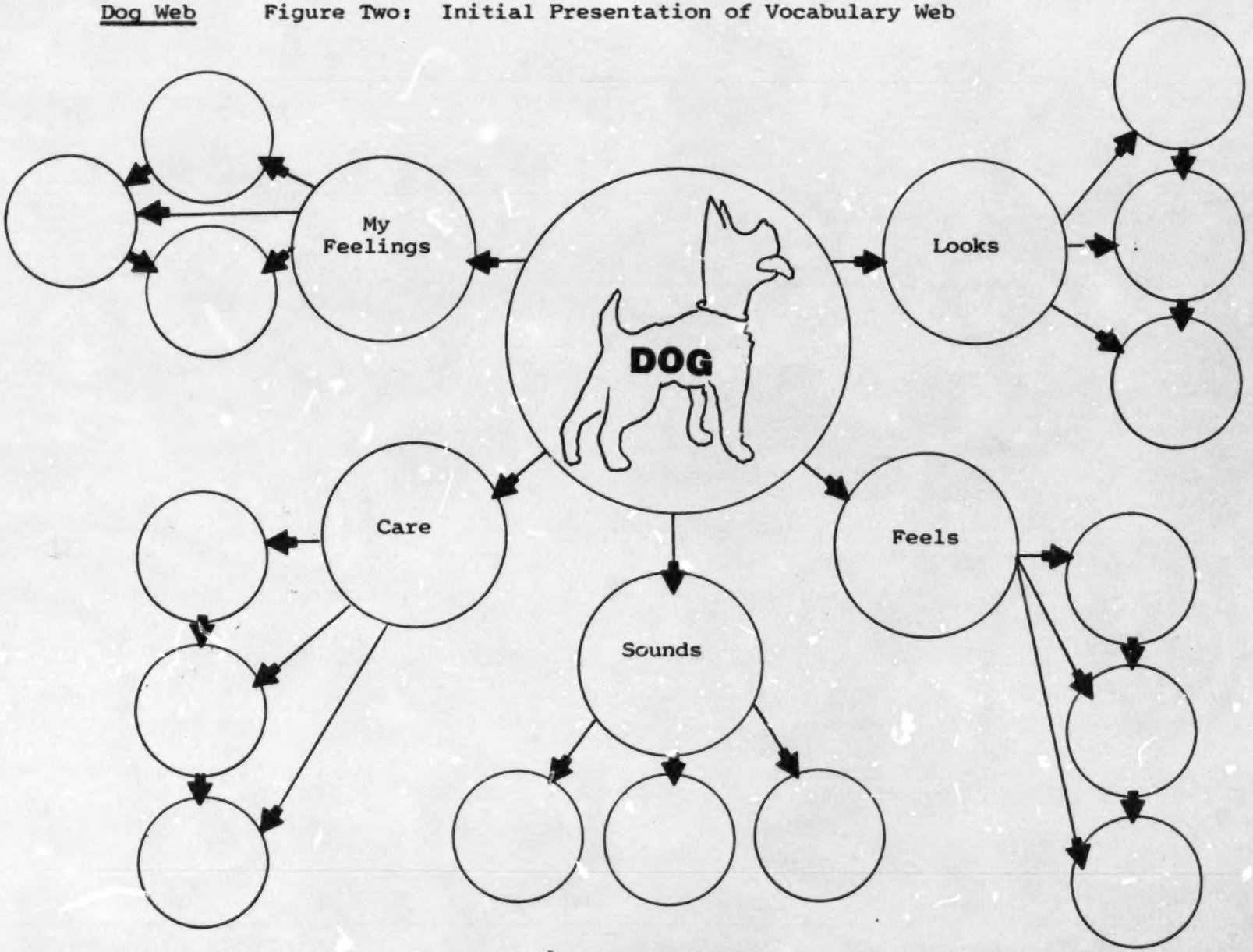

Figure Three: Completed Vocabulary Web for Dog

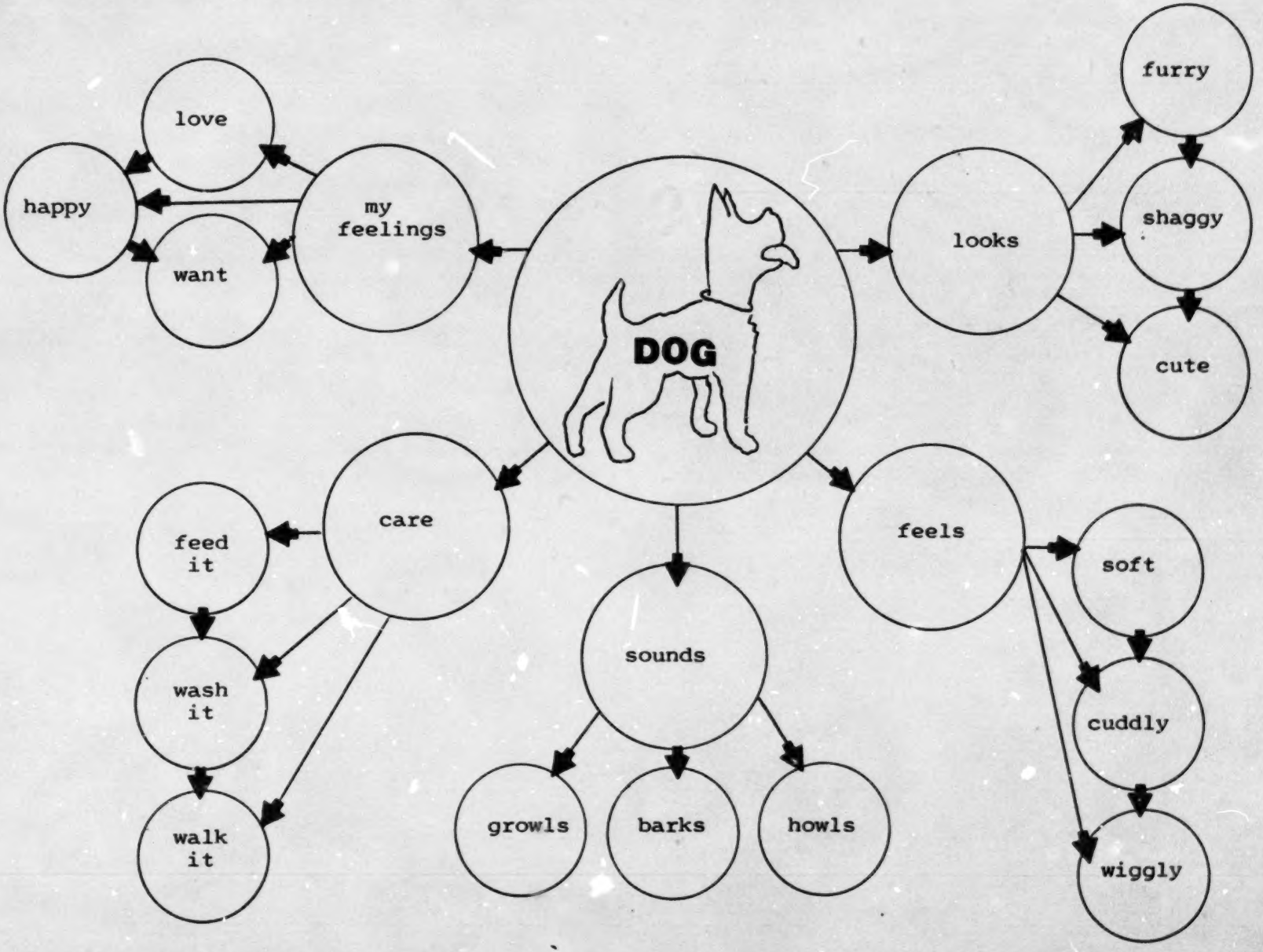

Figure Four: Web Outline for Creative Writing of Red Poems

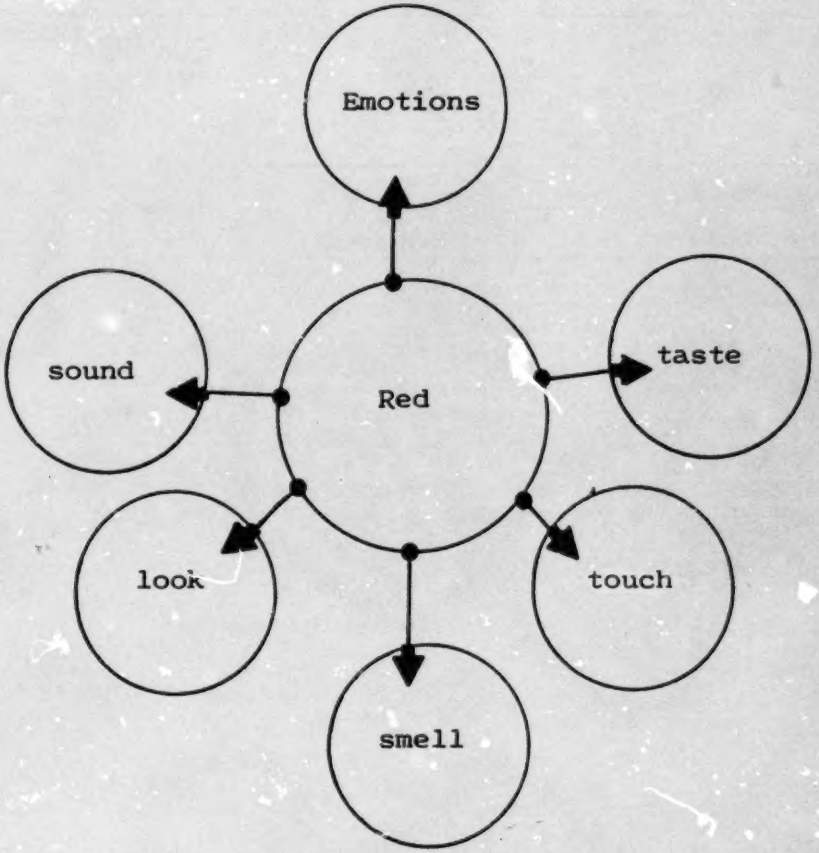

Figure Five: Picture for Sentence Expansion: Analogic Thought